

### Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### Listing of Claims:

1. (currently amended) A method for providing an early warning of thermal decay, comprising:

writing a test pattern to a track of a magnetic disk, wherein said test pattern has comprises at least one of a higher data density than a data density of user data in said track and a location on said magnetic disk having a greater than average susceptibility to thermal decay;

measuring an amplitude of a signal produced by reading said test pattern;

storing said measured amplitude;

reading said test pattern from said track to obtain an observed amplitude of a signal produced by said test patterns signal;

comparing said measured amplitude to said observed amplitude; and

producing a thermal decay warning signal if said comparison is unfavorable.

2. (currently amended) The method of Claim 1, wherein said ~~step of writing a test pattern~~ has comprises writing information to at least a first track of said magnetic disk at a test first frequency in said track that, wherein said first frequency is higher than a nominal data frequency for user data in said track.

3. (currently amended) The method of Claim 2, wherein said ~~at least a first track~~ is located within a first zone of said magnetic disk, ~~wherein said test first-frequency is a~~ nominal data frequency for user data in a second zone of said magnetic disk, and ~~wherein~~ said first zone is located towards an inside diameter of said magnetic disk relative to said second zone.

4. (currently amended) The method of Claim 1, further comprising identifying a sector of said magnetic disk at which a magnetic medium ~~comprising an information storing portion~~ of said magnetic disk is thinner than an average magnetic medium thickness of said magnetic medium disk, and then writing wherein at least a portion of said test pattern ~~is written to said identified sector~~ in response to said identification.

5. (currently amended) The method of Claim 4, further comprising identifying ~~wherein said sector is identified~~ by measuring the amplitude of signals produced by a ~~plurality of~~ automatic gain control fields, ~~and wherein said identified sector is associated with a one of said automatic gain control fields producing an amplitude that is less than a nominal automatic gain control field amplitude~~ for said automatic gain control fields.

6. (currently amended) The method of Claim 1, further comprising, in response to said thermal decay warning signal, refreshing data stored on ~~at least a portion of~~ said magnetic disk.

7. (currently amended) The method of Claim 1, wherein said a-test pattern is written to each data storage surface of each magnetic disk included in a hard disk drive.

8. (currently amended) The method of Claim 1, wherein said steps of reading said test pattern ~~to obtain an observed amplitude of said test signal~~, comparing said measured amplitude ~~to said observed amplitude~~, and producing said a-thermal decay warning signal ~~if said comparison is unfavorable~~ are performed periodically.

9. (currently amended) The method of Claim 1, further comprising creating wherein ~~a~~ predetermined portion of said magnetic disk having a greater than average susceptibility to thermal decay ~~is created during manufacture of said magnetic disk~~, and then writing ~~and wherein said test pattern is written to said predetermined portion of said magnetic disk in response to identifying said predetermined portion of said magnetic disk.~~

10. (original) The method of Claim 1, wherein said test pattern is written in accordance with a longitudinal recording scheme.

11. (currently amended) A method for providing an early warning of thermal decay, comprising:

writing a test pattern to a track of a magnetic disk, wherein said test pattern has ~~comprises at least one of~~ a lower data density than a data density of user data in said

~~track and a location on said magnetic disk having a greater than average susceptibility to thermal decay;~~

measuring an amplitude of a signal produced by reading said test pattern;

storing said measured amplitude;

reading said test pattern from said track to obtain an observed amplitude of a signal produced by said test ~~pattern~~signal;

comparing said measured amplitude to said observed amplitude; and

producing a thermal decay warning signal if said comparison is unfavorable.

12. (currently amended) The method of Claim 11, wherein said ~~step of writing a test pattern~~ has comprises writing information to at least a first track of said magnetic disk at a test first frequency in said track that, wherein said first frequency is lower than a nominal data frequency for user data in said track.

13. (currently amended) The method of Claim 12, wherein said ~~at least a first track~~ is located within a first zone of said magnetic disk, ~~wherein said test first frequency~~ is a nominal data frequency for user data in a second zone of said magnetic disk, and ~~wherein said first zone~~ is located towards an outside diameter of said magnetic disk relative to said second zone.

14. (currently amended) The method of Claim 11, further comprising identifying a sector of said magnetic disk at which a magnetic medium ~~comprising an information storing portion~~ of said magnetic disk is thinner than an average magnetic medium

thickness of said magnetic ~~medium~~disk, ~~and then writing wherein at least a portion of~~  
said test pattern is ~~written to said identified sector~~ in response to said identification.

15. (currently amended) The method of Claim 14, further comprising identifying  
~~wherein said sector is identified by measuring the amplitude of signals produced by a~~  
~~plurality of automatic gain control fields, and wherein said identified sector is associated~~  
with ~~a~~one of said automatic gain control fields producing an amplitude that is less than a  
nominal ~~automatic gain control field amplitude~~ of said automatic gain control fields.

16. (original) The method of Claim 11, further comprising, in response to said  
thermal decay warning signal, refreshing data stored on at least a portion of said magnetic  
disk.

17. (currently amended) The method of Claim 11, wherein said ~~a~~-test pattern is  
written to each data storage surface of each magnetic disk included in a hard disk drive.

18. (currently amended) The method of Claim 11, wherein said steps of reading  
said test pattern ~~to obtain an observed amplitude of said test signal~~, comparing said  
measured amplitude ~~to said observed amplitude~~, and producing said ~~a~~-thermal decay  
warning signal if ~~said comparison is unfavorable~~ are performed periodically.

19. (currently amended) The method of Claim 11, further comprising creating  
~~wherein a~~ predetermined portion of said magnetic disk having a greater than average

susceptibility to thermal decay ~~is created during manufacture of said magnetic disk, and~~  
~~then writing wherein said test pattern is written to said~~ predetermined portion of said  
magnetic disk in response to identifying said predetermined portion of said magnetic  
disk.

20. (original) The method of Claim 11, wherein said test pattern is written in  
accordance with a perpendicular recording scheme.

21. (currently amended) A method for detecting thermal decay in a hard disk  
drive, comprising:

identifying a sector of a magnetic disk having a magnetization that is less than an  
average magnetization for said magnetic disk;

writing an early warning pattern to said sector;

reading an amplitude of said early warning pattern to obtain a reference  
amplitude;

storing said reference amplitude;

reading an amplitude of said early warning pattern to obtain an observed  
amplitude; and

producing a thermal decay warning signal if said observed amplitude is less than  
said reference amplitude by more than a predetermined amount.

22. (currently amended) The method of Claim 21, further comprising identifying  
~~wherein said sector is identified by~~ observing an amplitude of a selected type of servo

sector information written to said disk, and then writing said early warning pattern to said sector in response to said identification, wherein said ~~identified~~ sector is a sector associated with ~~a~~ one of said selected type of servo sector information having an amplitude that is at least about 10% less than an average amplitude of said selected type of servo sector information.

23. (currently amended) The method of Claim 22, wherein said selected type of servo sector information comprises automatic gain control information.

24. (currently amended) The method of Claim 21, further comprising ~~wherein said~~ ~~step of identifying said a sector by of a magnetic disk having a magnetization that is less than an average magnetization for said magnetic disk comprises identifying an area of~~ said magnetic disk having a magnetic media thickness that is less than an average ~~magnetic media~~ thickness of said magnetic media, and then writing said early warning pattern to said sector in response to said identification ~~disk~~, wherein said ~~identified~~ sector is ~~a sector~~ located in said ~~identified~~ area of said magnetic disk.

25. (currently amended) The method of Claim 21, further comprising producing a predetermined ~~an~~ area of said magnetic disk having a magnetic media thickness that is less than an average ~~magnetic media~~ thickness of said magnetic media ~~disk~~, and then writing said early warning pattern to said sector in response to identifying said predetermined area of said magnetic disk, wherein said ~~step of identifying a sector has of~~ ~~a magnetic disk having a magnetization that is less than an average magnetization for said~~

magnetic disk ~~and comprises identifying at least a first sector that is at least partially~~  
located within said predetermined area of said magnetic disk ~~having a less than average~~  
~~magnetic media thickness.~~

26. (currently amended) The method of Claim 25, wherein said hard disk drive stores data according to a longitudinal recording scheme, and ~~wherein said~~ predetermined area of said magnetic disk ~~having a less than average magnetic media thickness~~ is located towards an inner diameter of said magnetic disk.

27. (currently amended) The method of Claim 25, wherein said disk drive stores data according to a perpendicular recording scheme, and ~~wherein said~~ predetermined area of said magnetic disk ~~having a less than average media thickness~~ is located towards an outer diameter of said magnetic disk.

28. (currently amended) The method of Claim 21, wherein said hard disk drive stores data according to a longitudinal recording scheme, and ~~wherein said step of writing an early warning pattern~~ has ~~comprises writing data to said identified sector of said magnetic disk at a frequency in said sector greater than a nominal data frequency for user~~  
5 data stored on a track comprising said ~~identified sector.~~

29. (currently amended) The method of Claim 21, wherein said disk drive stores data according to a perpendicular recording scheme, and ~~wherein said step of writing an early warning pattern~~ has ~~comprises writing data to said identified sector of said magnetic~~



5 ~~disk at a frequency in said sector~~ less than a nominal data frequency for user data stored on a track comprising said ~~identified~~ sector.

30. (original) A method of detecting thermal decay in a magnetic storage device, comprising:

writing a test pattern having a greater susceptibility to thermal decay than a 1T pattern to a magnetic storage medium;

5 reading an amplitude of a signal produced by said test pattern to obtain a reference amplitude;

storing said reference amplitude;

reading an amplitude of a signal produced by said test pattern to obtain an observed amplitude;

10 comparing said reference amplitude to said observed amplitude; and  
in response to an unfavorable comparison, producing a thermal decay warning signal.

31. (currently amended) The method of Claim 30, further comprising:

writing a first evaluation test pattern to said magnetic storage medium;

writing a second evaluation test pattern to said magnetic storage medium; and

selecting, wherein said test pattern is selected from at least said first and second  
5 evaluation test patterns.

32. (currently amended) The method of Claim 30, further comprising identifying a portion of said magnetic storage medium having a susceptibility to thermal decay that is greater than an average susceptibility to thermal decay of said magnetic storage medium, and then writing said test pattern to said portion of said magnetic storage medium in response to said identification.

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33. (currently amended) The method of Claim 32, wherein said ~~identified~~ portion of said magnetic storage medium ~~has is a portion of said magnetic storage medium~~ having a less than average magnetic storage material thickness.

34. (original) The method of Claim 30, wherein said magnetic storage device stores data according to a longitudinal recording scheme.

35. (original) The method of Claim 30, wherein said magnetic storage device stores data according to a perpendicular recording scheme.

36. (currently amended) A hard disk drive, comprising:

a base;

a magnetic storage disk comprising a magnetic storage material and ~~a plurality of~~ data tracks;

5 a transducer head for reading and writing information to and from said data tracks, wherein said information comprises ~~at least a first~~ test pattern, and ~~wherein~~ said

transducer head is movable in a radial direction with respect to said disk to address a selected one of said ~~plurality of~~ data tracks;

10 a voice coil motor, ~~interconnected to said transducer head~~, for moving said transducer head with respect to said data tracks;

a controller, interconnected to said voice coil motor, for controlling a position of said transducer head with respect to said data tracks; and

15 a channel, interconnected to said transducer head, wherein an amplitude of a signal derived from said ~~at least a first test pattern in a data track of said data tracks and~~ having pattern having a greater susceptibility to thermal decay than user data ~~located in a like data track encoded in said at least a first of said data tracks and read from said at least a first data track~~ is transmitted by said channel, ~~and wherein a thermal decay warning signal is generated if said amplitude of said warning signal derived from said at least a first test pattern is less than a reference amplitude.~~

37. (currently amended) The hard disk drive of Claim 36, wherein said ~~at least a first test pattern~~ is written to an area of said magnetic storage disk having a magnetic storage material thickness that is less than a prescribed amount in response to identifying said area of said magnetic storage disk.

38. (currently amended) The hard disk drive of Claim 37, wherein said prescribed amount ~~has comprises~~ a thickness that is less than about 90% of an average thickness of said magnetic storage material.

39. (currently amended) The hard disk drive of Claim 37, wherein said magnetic storage disk is formed having a magnetic storage material thickness that is intentionally reduced in said area of said magnetic storage disk ~~having a magnetic storage material thickness that is less than a prescribed amount.~~

40. (currently amended) The hard disk drive of Claim 36, wherein said ~~first~~ test pattern is written to an area of said magnetic storage disk having an increased probability that magnetic domains ~~included~~ in said area will return to a direction occupied by said magnetic domains in response to identifying said area of said magnetic storage  
5 disk domain prior to being written with said at least a first test pattern.

41. (currently amended) The hard disk drive of Claim 36, wherein said hard disk drive stores data using a longitudinal recording scheme, ~~wherein said at least a first of~~ said data tracks is located in a first zone of said magnetic storage disk, said test pattern has a test wherein said data frequency that of said at least a first test pattern corresponds  
5 to a data frequency for user data located in a second zone of said magnetic storage disk, and ~~wherein~~ said second zone is located farther from an interior diameter of said magnetic storage disk than is said first zone.

42. (currently amended) The hard disk drive of Claim 36, wherein said hard disk drive stores data using a perpendicular recording scheme, ~~wherein said at least a first of~~ said data tracks is located in a first zone of said magnetic storage disk, wherein said test pattern has a test data frequency that of said at least a first test pattern corresponds to a

5 data frequency for user data located in a second zone of said magnetic storage disk, and ~~wherein~~ said second zone is located farther from an outside diameter of said magnetic storage disk than is said first zone.

43. (currently amended) The hard disk drive of Claim 36, wherein said hard disk drive stores data using a longitudinal recording scheme, and ~~wherein~~ said ~~at least a first~~ test pattern ~~has a test~~ comprises a data frequency in said data track that is greater than a nominal frequency of said user data in said data track.

44. (currently amended) The hard disk drive of Claim 36, wherein said hard disk drive stores data using a perpendicular recording scheme, and ~~wherein~~ said ~~at least a first~~ test pattern ~~has a test frequency in said data track that is~~ comprises data that is less than a nominal frequency of said user data in said data track.

45. (currently amended) The hard disk drive of Claim 36, wherein said hard disk drive stores data using a perpendicular recording scheme, and ~~wherein~~ said ~~at least a first~~ test pattern comprises a 12T pattern or greater.

46. (currently amended) The hard disk drive of Claim 36, wherein said hard disk drive stores data using a perpendicular recording scheme, and ~~wherein~~ said ~~at least a first~~ test pattern comprises a 24T pattern or greater.

47. (currently amended) A hard disk drive, comprising:

a base;

a magnetic storage disk comprising a magnetic storage material and ~~a plurality of~~  
data tracks, wherein a data track ~~at least a first of said plurality of~~ data tracks has a reduced  
5 magnetization capacity;

a transducer head for reading and writing information to and from said data  
tracks, wherein said information comprises ~~at least a first test pattern~~, and ~~wherein~~ said  
transducer head is movable in a radial direction with respect to said disk to address a  
selected one of said ~~plurality of~~ data tracks;

10 a voice coil motor, ~~interconnected to said transducer head~~, for moving said  
transducer head with respect to said data tracks;

a controller, interconnected to said voice coil motor, for controlling a position of  
said transducer head with respect to said data tracks; and

a channel, interconnected to said transducer head, wherein an amplitude of a  
15 signal derived from said ~~at least a first test pattern encoded in said at least a first of said~~  
~~plurality of data tracks and read from said at least a first of said plurality of~~ in said data  
track and having a different data density in said data track than user data in said data  
track is transmitted by said channel, and ~~wherein~~ a thermal decay warning signal is  
generated if said amplitude of said warning signal ~~derived from said at least a first test~~  
20 ~~pattern~~ is less than a reference amplitude.

48. (currently amended) The hard disk drive of Claim 47, wherein said reduced magnetization capacity of said data track ~~magnetic storage disk~~ corresponds to a reduced magnetic storage material thickness.

49. (currently amended) The hard disk drive of Claim 48, wherein an ~~said~~ area of said magnetic storage disk comprising said ~~at least a first of said data track tracks~~ and ~~comprising~~ said reduced magnetic storage material thickness is formed at a predetermined location on said magnetic storage disk.

50. (currently amended) The hard disk drive of Claim 49, wherein said hard disk drive stores data according to a longitudinal recording scheme, and ~~wherein~~ said predetermined location is towards an inside diameter of said magnetic storage disk.

51. (currently amended) The hard disk drive of Claim 49, wherein said hard disk drive stores data according to a perpendicular recording scheme, and ~~wherein~~ said predetermined location is towards an outside diameter of said magnetic storage disk.

52. (currently amended) The hard disk drive of Claim 47, wherein said hard disk drive stores data according to a longitudinal recording scheme, and ~~wherein~~ said ~~at least a first test pattern~~ has a higher data-frequency in said data track ~~that is higher than a user data frequency in for a like one of said plurality of data track tracks~~.

53. (currently amended) The hard disk drive of Claim 47, wherein said hard disk drive stores data according to a perpendicular recording scheme, and ~~wherein said at least a first test pattern comprises a 12T or greater pattern.~~

54. (new) The hard disk drive of Claim 47, wherein said hard disk drive stores data according to a perpendicular recording scheme, and said test pattern comprises a 24T or greater pattern.

55. (new) The hard disk drive of Claim 47, wherein said hard disk drive stores data according to a perpendicular recording scheme, and said test pattern comprises a 12T pattern and a 24T pattern.

56. (new) A hard disk drive, comprising:

a base;

a magnetic storage disk comprising a magnetic storage material and data tracks, wherein a data track of said data tracks has a reduced magnetization capacity;

5 a transducer head for reading and writing information to and from said data tracks, wherein said information comprises an early warning pattern, and said transducer head is movable in a radial direction with respect to said disk to address a selected one of said data tracks;

10 a voice coil motor for moving said transducer head with respect to said data tracks;



a controller, interconnected to said voice coil motor, for controlling a position of said transducer head with respect to said data tracks; and

15 a channel, interconnected to said transducer head, wherein an amplitude of a signal derived from said early warning pattern in said data track and having a greater susceptibility to thermal decay than a 1T pattern in said data track is transmitted by said channel, and a thermal decay warning signal is generated if said amplitude of said warning signal is less than a reference amplitude.

57. (new) The hard disk drive of Claim 56, wherein said early warning pattern is written to an area of said magnetic storage disk having a magnetic storage material thickness that is less than a prescribed amount in response to identifying said area of said magnetic storage disk.

58. (new) The hard disk drive of Claim 57, wherein said hard disk drive identifies said area of said magnetic storage disk in response to reading servo information from said magnetic storage disk.

59. (new) The hard disk drive of Claim 58, wherein said hard disk drive identifies said area of said magnetic storage disk at a factory before said hard disk drive is shipped to an end user.

60. (new) The hard disk drive of Claim 58, wherein said servo information is automatic gain control.

61. (new) A method for providing an early warning of thermal decay in a disk drive, wherein the disk drive includes a magnetic disk, the disk includes a track, a test pattern on the track has a different data density than user data on the track, and the disk drive stores a reference amplitude, the method comprising:

- 5           reading the test pattern from the track to obtain an observed amplitude;  
            comparing the reference amplitude to the observed amplitude; and  
            producing a thermal decay warning signal if the comparison is unfavorable.

62. (new) The method of Claim 61, wherein the test pattern is an early warning pattern that has greater susceptibility to thermal decay than any servo information and any user data on the disk.

63. (new) The method of Claim 61, wherein the test pattern on the track has a higher susceptibility to thermal decay than user data on the track due to the different data density.

64. (new) The method of Claim 61, wherein the test pattern on the track has a higher susceptibility to thermal decay than a 1T pattern on the track due to the test pattern on the track having a different data density than the 1T pattern on the track.

65. (new) The method of Claim 61, wherein the disk includes first and second zones, the track is located in the first zone, and the test pattern has the same data density as user data in the second zone.

66. (new) A method for providing an early warning of thermal decay in a disk drive, wherein the disk drive includes a magnetic disk, the disk includes a track, a test pattern on the track has a larger data density than user data on the track, and the disk drive stores a reference amplitude, the method comprising:

- 5           reading the test pattern from the track to obtain an observed amplitude;  
              comparing the reference amplitude to the observed amplitude; and  
              producing a thermal decay warning signal if the comparison is unfavorable.

67. (new) The method of Claim 66, wherein the test pattern is an early warning pattern that has greater susceptibility to thermal decay than any servo information and any user data on the disk.

68. (new) The method of Claim 66, wherein the test pattern on the track has a higher susceptibility to thermal decay than user data on the track due to the larger data density.

69. (new) The method of Claim 66, wherein the test pattern on the track has a higher susceptibility to thermal decay than a 1T pattern on the track due to the test pattern on the track having a larger data density than the 1T pattern on the track.

70. (new) The method of Claim 66, wherein the disk includes first and second zones, the track is located in the first zone, and the test pattern has the same data density as user data in the second zone.

71. (new) A method for providing an early warning of thermal decay in a disk drive, wherein the disk drive includes a magnetic disk, the disk includes a track, a test pattern on the track has a smaller data density than user data on the track, and the disk drive stores a reference amplitude, the method comprising:

- 5           reading the test pattern from the track to obtain an observed amplitude;  
              comparing the reference amplitude to the observed amplitude; and  
              producing a thermal decay warning signal if the comparison is unfavorable.

72. (new) The method of Claim 71, wherein the test pattern is an early warning pattern that has greater susceptibility to thermal decay than any servo information and any user data on the disk.

73. (new) The method of Claim 71, wherein the test pattern on the track has a higher susceptibility to thermal decay than user data on the track due to the smaller data density.

74. (new) The method of Claim 71, wherein the test pattern on the track has a higher susceptibility to thermal decay than a 1T pattern on the track due to the test pattern on the track having a smaller data density than the 1T pattern on the track.

75. (new) The method of Claim 71, wherein the disk includes first and second zones, the track is located in the first zone, and the test pattern has the same data density as user data in the second zone.

76. (new) A method for providing an early warning of thermal decay in a disk drive, wherein the disk drive includes a magnetic disk, the disk includes a track, a test pattern on the track has a different data density than a 1T pattern on the track, and the disk drive stores a reference amplitude, the method comprising:

- 5       reading the test pattern from the track to obtain an observed amplitude;  
      comparing the reference amplitude to the observed amplitude; and  
      producing a thermal decay warning signal if the comparison is unfavorable.

77. (new) The method of Claim 76, wherein the test pattern is an early warning pattern that has greater susceptibility to thermal decay than any servo information and any user data on the disk.

78. (new) The method of Claim 76, wherein the test pattern on the track has a higher susceptibility to thermal decay than the 1T pattern on the track due to the different data density.

79. (new) The method of Claim 78, wherein the test pattern on the track has a larger data density than the 1T pattern on the track.

80. (new) The method of Claim 78, wherein the test pattern on the track has a smaller data density than the 1T pattern on the track.

81. (new) A method for providing an early warning of thermal decay in a disk drive, wherein the disk drive includes a magnetic disk, the method comprising the following steps in the sequence set forth:

identifying a sector on the disk that has a greater than average susceptibility to thermal decay;

writing a test pattern to the sector in response to identifying the sector;

reading the test pattern from the sector to obtain a reference amplitude;

storing the reference amplitude in the disk drive;

reading the test pattern from the sector to obtain a measured amplitude;

comparing the reference amplitude and the measured amplitude; and

producing a thermal decay warning signal if the comparison is unfavorable.

82. (new) The method of Claim 81, wherein identifying the sector includes:

reading servo information from the disk to obtain measured servo amplitudes; and

determining a portion of the disk that has a greater than average susceptibility to thermal decay based on the measured servo amplitudes, wherein the sector is associated with the portion of the disk.

83. (new) The method of Claim 82, wherein the servo information is automatic gain control.

84. (new) The method of Claim 81, wherein identifying the sector includes determining a portion of the disk in which magnetic media of the disk is thinner than an

average thickness of the magnetic media of the disk, and the sector is associated with the portion of the disk.

85. (new) The method of Claim 81, wherein identifying the sector includes manufacturing the disk so that magnetic media in a predetermined portion of the disk is thinner than an average thickness of the magnetic media in the disk, and the sector is associated with the predetermined portion of the disk.

86. (new) A method for providing an early warning of thermal decay in a disk drive, wherein the disk drive includes a magnetic disk, the method comprising the following steps in the sequence set forth:

5 identifying a sector on the disk that has a greater than average susceptibility to thermal decay;

writing a test pattern to the sector in response to identifying the sector, wherein the test pattern has a greater susceptibility to thermal decay than any servo information and any user data on the disk;

10 reading the test pattern from the sector to obtain a reference amplitude;  
storing the reference amplitude in the disk drive;  
reading the test pattern from the sector to obtain a measured amplitude;  
comparing the reference amplitude and the measured amplitude; and  
producing a thermal decay warning signal if the comparison is unfavorable.

87. (new) The method of Claim 86, wherein identifying the sector includes:

reading servo information from the disk to obtain measured servo amplitudes; and  
determining a portion of the disk that has a greater than average susceptibility to  
thermal decay based on the measured servo amplitudes, wherein the sector is associated  
5 with the portion of the disk.

88. (new) The method of Claim 87, wherein the servo information is automatic  
gain control.

89. (new) The method of Claim 86, wherein identifying the sector includes  
determining a portion of the disk in which magnetic media of the disk is thinner than an  
average thickness of the magnetic media of the disk, and the sector is associated with the  
portion of the disk.

90. (new) The method of Claim 86, wherein identifying the sector includes  
manufacturing the disk so that magnetic media in a predetermined portion of the disk is  
thinner than an average thickness of the magnetic media in the disk, and the sector is  
associated with the predetermined portion of the disk.

91. (new) A method for providing an early warning of thermal decay in a disk  
drive, wherein the disk drive includes a magnetic disk, the method comprising the  
following steps in the sequence set forth:

identifying a sector on the disk that has a greater than average susceptibility to  
5 thermal decay;



writing a test pattern to the sector in response to identifying the sector;

reading the test pattern from the sector to obtain a reference amplitude;

storing the reference amplitude in the disk drive;

shipping the disk drive from a factory to an end user;

10 reading the test pattern from the sector to obtain a measured amplitude;

comparing the reference amplitude and the measured amplitude; and

producing a thermal decay warning signal if the comparison is unfavorable.

92. (new) The method of Claim 91, wherein identifying the sector includes:

reading servo information from the disk to obtain measured servo amplitudes; and

determining a portion of the disk that has a greater than average susceptibility to

thermal decay based on the measured servo amplitudes, wherein the sector is associated

5 with the portion of the disk.

93. (new) The method of Claim 92, wherein the servo information is automatic

gain control.

94. (new) The method of Claim 91, wherein identifying the sector includes

determining a portion of the disk in which magnetic media of the disk is thinner than an

average thickness of the magnetic media of the disk, and the sector is associated with the

portion of the disk.

95. (new) The method of Claim 91, wherein identifying the sector includes manufacturing the disk so that magnetic media in a predetermined portion of the disk is thinner than an average thickness of the magnetic media in the disk, and the sector is associated with the predetermined portion of the disk.

96. (new) A method for providing an early warning of thermal decay in a disk drive, wherein the disk drive includes a magnetic disk, the method comprising the following steps in the sequence set forth:

writing evaluation test patterns to the disk;

5 reading the evaluation test patterns from the disk;

selecting a test pattern from the evaluation test patterns that exhibits the greatest amount of thermal decay;

writing the test pattern to a sector on the disk;

reading the test pattern from the sector to obtain a reference amplitude;

10 storing the reference amplitude in the disk drive;

reading the test pattern from the sector to obtain a measured amplitude;

comparing the reference amplitude and the measured amplitude; and

producing a thermal decay warning signal if the comparison is unfavorable.

97. (new) The method of Claim 96, including subjecting the disk to elevated temperature between writing and reading the evaluation test patterns.

98. (new) The method of Claim 96, wherein the test pattern has a greater susceptibility to thermal decay than any servo information and any user data on the disk.

99. (new) The method of Claim 98, wherein the test pattern on a track of the disk has a larger data density than a 1T pattern on the track.

100. (new) The method of Claim 98, wherein the test pattern on a track of the disk has a smaller data density than a 1T pattern on the track.